

What Is Claimed Is:

1. A liquid crystal display device, comprising:

a plurality of gate lines formed on a first substrate along a transverse direction, each gate line including a gate electrode;

a first insulating layer formed on the first substrate to cover the gate lines and the gate electrodes;

a plurality of data lines formed on the first insulating layer along a longitudinal direction, the data lines defining a plurality of pixel regions with the gate lines and each including a source electrode;

a thin film transistor formed at a crossing region of each of the gate and data lines, each thin film transistor including one of the gate electrodes, a semiconductor layer, one of the source electrodes, and a drain electrode;

a color filter over the first insulating layer in each pixel region, each color filter having one of red, green and blue colors, the color filters having a plurality of drain contact holes exposing the drain electrodes;

a light-shielding color filer pattern over each thin film transistor, each light-shielding color filter pattern including at least two of red, green and blue color resins;

a pixel electrode over the color filter in each pixel region, each pixel electrode contacting one of the drain electrodes;

a common electrode on a second substrate, the common electrode facing the first substrate; and

a liquid crystal layer interposed between the common electrode and the pixel electrodes.

2. The device according to claim 1, wherein each semiconductor layer includes an active layer of amorphous silicon and an ohmic contact layer of doped amorphous silicon.

3. The device according to claim 2, wherein the source and drain electrodes are formed on the ohmic contact layer and spaced apart from each other.

4. The device according to claim 2, wherein each thin film transistor includes a channel on the active layer between the source and drain electrodes.

5. The device according to claim 1, wherein the light-shielding color filter patterns are formed of the same material as the color filters.

6. The device according to claim 1, wherein a cell gap between the light-shielding color filter patterns and the pixel electrodes is greater than zero.

7. The device according to claim 1, wherein the color filters are formed of a photosensitive resin through a photolithography process.

8. The device according to claim 1, wherein red, green and blue color filters are formed sequentially from the semiconductor layers towards the liquid crystal layer.
9. The device according to claim 1, wherein each of red, green and blue color filter patterns has a thickness smaller than each of red, green and blue color filters.
10. The device according to claim 1, wherein each light-shielding color filter pattern has a red color filter pattern, a green color filter pattern and a blue color filter pattern.
11. The device according to claim 1, further comprising a second insulating layer between the thin film transistors and the light-shielding patterns and between the first insulating layer and the color filters, wherein the second insulating layer covers the source electrodes, the drain electrodes and the data lines and wherein the drain contact holes extend through the second insulating layer.
12. The device according to claim 1, further comprising a third insulating layer between the color filters and the pixel electrodes, wherein the third insulating layer covers the color filters and the light-shielding color filter patterns.

13. The device according to claim 1, wherein a portion of each gate line acts as a first capacitor electrode.
14. The device according to claim 13, further comprising a second capacitor electrode on the first insulating layer over each portion of the gate line.
15. The device according to claim 14, wherein each second capacitor electrode and portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode.
16. The device according to claim 15, wherein each color filter includes a capacitor contact hole exposing the second capacitor electrode.
17. The device according to claim 16, wherein the pixel electrodes contact the second capacitor electrodes through the capacitor contact holes.
18. A method of fabricating a liquid crystal display device, comprising:
forming a plurality of gate lines on a first substrate along a transverse direction, each gate line including a gate electrode;

forming a first insulating layer on the first substrate to cover the gate lines and the gate electrodes;

forming a plurality of data lines on the first insulating layer along a longitudinal direction, the data lines defining a plurality of pixel regions with the gate lines and each including a source electrode;

forming a thin film transistor formed at a crossing region of each of the gate and data lines, each thin film transistor including one of the gate electrodes, a semiconductor layer, one of the source electrodes, and a drain electrode;

forming a color filter over the first insulating layer in each pixel region, each color filter having one of red, green and blue colors and a drain contact hole exposing the drain electrode;

forming a light-shielding color filter pattern over each semiconductor layer, each light-shielding color filter pattern including at least two of red, green and blue color resins;

forming a pixel electrode over the color filter in each pixel region, each pixel electrode contacting one of the drain electrodes;

forming a common electrode on a second substrate, the common electrode facing the first substrate; and

forming a liquid crystal layer between the common electrode and the pixel electrodes.

19. The method according to claim 18, wherein each semiconductor layer includes an active layer of amorphous and an ohmic contact layer of doped amorphous silicon.

20. The method according to claim 19, wherein the source and drain electrodes are formed on the ohmic contact layer and spaced apart from each other.

21. The method according to claim 19, wherein forming each thin film transistor includes forming a channel on the active layer between the source and drain electrodes.

22. The method according to claim 18, wherein forming the light-shielding color filter patterns includes forming the light-shielding color filter patterns at the same time and using the same material as the color filters.

23. The method according to claim 18, wherein forming the liquid crystal layer includes forming a cell gap that is greater than zero between the light-shielding color filters pattern and the pixel electrodes.

24. The method according to claim 18, wherein each color filter is formed of a photosensitive resin through a photolithography process.

25. The method according to claim 18, wherein forming each color filter includes forming red, green and blue color filters sequentially from the semiconductor layers towards the liquid crystal layer.

26. The method according to claim 25, wherein forming each light-shielding color filter pattern includes forming red, green and blue color filter patterns using a diffraction exposure method such that the red, green and blue color filter patterns have a thickness smaller than each of the red, green and blue color filters.

27. The method according to claim 18, wherein each light-shielding color filter pattern has a red color filter pattern, a green color filter pattern and a blue color filter pattern.

28. The method according to claim 18, further comprising forming a second insulating layer between the thin film transistors and the light-shielding patterns and between the first insulating layer and the color filters, wherein the second insulating layer covers the source electrodes, the drain electrodes and the data lines.

29. The method according to claim 28, further comprising etching an exposed portion of the second insulating layer such that the drain contact holes extend through the second insulating layer to expose a portion of each drain electrode.

30. The method according to claim 18, further comprising forming a third insulating layer between the color filters and the pixel electrodes, wherein the third insulating layer covers the color filters and the light-shielding color filter patterns.

31. The method according to claim 30, further comprising etching a portion of the third insulating layer corresponding to the drain contact holes such that the drain contact holes extend through the third insulating layer to expose a portion of each drain electrode.

32. The method according to claim 18, wherein a portion of each gate line acts as a first capacitor electrode.

33. The method according to claim 32, further comprising forming a second capacitor electrode on the first insulating layer over each portion of the gate line, wherein the second capacitor electrode and the portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode.

34. The method according to claim 33, wherein each color filter includes a capacitor contact hole exposing one of the second capacitor electrodes and wherein the pixel electrodes contacts the second capacitor electrodes through the capacitor contact holes.

35. A method of fabricating an array substrate for use in a liquid crystal display device, comprising:

forming a plurality of gate lines and a plurality of gate electrodes on a substrate, the gate lines disposed along a transverse direction and the gate electrodes extending from the gate lines;

forming a first insulating layer on the substrate to cover the gate lines and the gate electrodes;

forming active layers of amorphous silicon and ohmic contact layers of doped amorphous silicon on the first insulating layer, each active layer and ohmic contact layer disposed above one of the gate electrodes;

forming a plurality of data lines, a plurality of source electrodes and a plurality of drain electrodes, the data lines defining pixel regions with the gate lines, wherein the source and drain electrodes contact the ohmic contact layers and are spaced apart from each other, and wherein the source electrodes extend from the data lines, thereby completing a thin film transistor at a crossing of each of the gate and data lines;

forming a red color filter in a red pixel region and a red color filter pattern over each thin film transistor;

forming a green color filter in a green pixel region and a green color filter pattern over each thin film transistor;

forming a blue color filter in a blue pixel region and a blue color filter pattern over each thin film transistor; and

forming a pixel electrode in each of the pixel regions over each of the red, green and blue color filters;

wherein forming the red, green and blue color filters forms a light-shielding color filter pattern consisting of at least two of the red, green and blue color filter patterns.

36. The method according to claim 35, wherein forming the active layers and the ohmic contact layers includes forming a channel on each active layer between the source and drain electrodes.

37. The method according to claim 35, wherein each light-shielding color filter consists of the red, green and blue color filter patterns disposed sequentially from the semiconductor layer towards the liquid crystal layer.

38. The method according to claim 35, wherein forming the red, green and blue color filter patterns uses a diffraction exposure method such that the red, green and blue color filter patterns have a smaller thickness than the red, green and blue color filters.

39. The method according to claim 35, wherein the red, green and blue color filters and the red, green and blue color filter pattern are formed of a photosensitive resin through a photolithography process.

40. The method according to claim 35, further comprising forming a second insulating layer between the thin film transistors and the light-shielding patterns and between the first insulating layer and the color filters, wherein the second insulating layer covers the source electrodes, the drain electrodes and the data lines.

41. The method according to claim 35, further comprising forming a third insulating layer between the color filters and the pixel electrodes, wherein the third insulating layer covers the color filters and the light-shielding color filter patterns.

42. The method according to claim 35, wherein a portion of each gate line acts as a first capacitor electrode.

43. The method according to claim 35, wherein forming each data line includes forming a second capacitor electrode on the first insulating layer over the portion of each gate line, wherein the second capacitor electrode and the portion of the gate line constitute a storage capacitor with the first insulating layer interposed between the portion of the gate line and the second capacitor electrode.

44. The method according to claim 43, wherein each of the red, green and blue color filters includes a capacitor contact hole exposing the second capacitor electrode and wherein the pixel electrode contacts the second capacitor electrode through the capacitor contact hole.

45. The method according to claim 35, wherein each of the red, green and blue color filters includes a drain contact hole exposing the drain electrode and wherein the pixel electrode contacts the drain electrode through the drain contact hole.

46. A liquid crystal display device, comprising:

a plurality of gate lines formed on a first substrate along a transverse direction, each gate line including a gate electrode;

a first insulating layer formed on the first substrate to cover the gate lines and the gate electrodes;

a plurality of data lines formed on the first insulating layer along a longitudinal direction, the data lines defining a plurality of pixel regions with the gate lines, each data line including a source electrode;

a plurality of thin film transistors formed at a crossing region of the gate and data lines, the thin film transistors each including the gate electrode, a semiconductor layer, the source electrode, and a drain electrode;

a plurality of pixel electrodes formed on the first substrate in the pixel regions and contacting the drain electrodes;

a common electrode on a second substrate, the common electrode facing the first substrate;

a liquid crystal layer interposed between the common electrode and the pixel electrodes;

a plurality of color filters disposed on one of the first and second substrates in the pixel regions, each color filter containing one of red, green and blue color resins; and

a plurality of light-shielding color filter patterns disposed on the one of the first and second substrates such that the light-shielding color filter patterns cover the semiconductor layers to shield the semiconductor layers from incident light, each light-shielding color filter pattern including at least two of the red, green and blue color resins which are disposed sequentially between the semiconductor layer and the second substrate.

47. The device according to claim 46, wherein each light-shielding color filter pattern includes two of the red, green and blue color resins.

48. The device according to claim 46, wherein each light-shielding color filter pattern includes three of the red, green and blue color resins.

49. The device according to claim 46, wherein the light-shielding color filter pattern is formed in the same process step as the color filter.

50. The device according to claim 46, wherein the red, green and blue color filter patterns each has a thickness smaller than each of red, green and blue color filters, respectively.

51. The device according to claim 46, wherein the light-shielding color filter patterns and color filters are disposed on the first substrate, and the device further comprises a second insulating layer between the thin film transistor and the light-shielding pattern and between the first insulating layer and the color filter, the second insulating layer covers the source electrode, the drain electrode and the data line, and a drain contact hole extends through the second insulating layer to expose the drain electrode.

52. The device according to claim 46, wherein the light-shielding color filter patterns and color filters are disposed on the first substrate, and the device further comprises a third insulating layer between the color filters and the pixel electrodes, the third insulating layer covers the color filters and the light-shielding color filter patterns.

53. The device according to claim 51, further comprising a third insulating layer between the color filters and the pixel electrodes, the third insulating layer covering the color filters and the light-shielding color filter patterns.

54. The device according to claim 53, wherein the drain contact hole extends through the third insulating layer.